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REFLECTION

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Alergia ao látex: um problema emergente

Alergia al latex: an emergentes

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ABSTRACT

Objectives: The current review presents the pathogenic mechanisms, diagnostic and therapeutic and preventive measures to avoid the development of complications related to latex allergy. **Method:** Literature search electronically from articles already published on the basis of the NCBI / PUBMED / MEDLINE. **Results:** Manifestations of latex allergy are related to immediate hypersensitivity such as urticaria, angioedema, asthma or even anaphylaxis, or delayed hypersensitivity by a mechanism such as allergic contact dermatitis or primary irritation. **Conclusion:** Prevention of exposure, replacement and use of latex-free products such as synthetic gloves are essential for those affected. Adjustments in the workplace should be done with gloves without talc, low in allergens or synthetic gloves. These preventive measures significantly reduce the prevalence of allergic reactions. **Descriptors:** Latex allergy, Food and latex allergy, Latex allergy prevention.

RESUMO

Objetivos: A revisão atual apresenta os mecanismos imunopatológicos, diagnóstico e medidas terapêuticas e preventivas para evitar o desenvolvimento de complicações relacionadas à alergia ao látex. **Método:** Pesquisa bibliográfica por meio eletrônico a partir de artigos já publicados, na base do NCBI/PUBMED/MEDLINE. **Resultados:** As manifestações de alergia ao látex estão relacionadas com hipersensibilidade imediata como a urticária, o angioedema, a asma ou até anafilaxia, ou por mecanismo de hipersensibilidade tardia como a dermatite de contato alérgica ou por irritação primária. **Conclusão:** Prevenção à exposição, substituição e utilização de produtos livres de látex, como luvas sintéticas são essenciais para os afetados. Adaptações no local de trabalho devem ser feitas com uso de luvas sem talco, com baixo teor de alérgenos ou luvas sintéticas. Estas medidas preventivas reduzem significativamente a prevalência de reações alérgicas. **Descritores:** Alergia ao látex, Alimentos e alergia ao látex, Prevenção a reação ao látex.

RESUMEN

Objetivos: En esta revisión presentamos los mecanismos patogénicos, diagnóstico y medidas terapéuticas y preventivas para evitar el desarrollo de complicaciones relacionadas con la alergia al látex. **Método:** La búsqueda bibliográfica electrónica de artículos ya publicados sobre la base de la Revista / PubMed / MEDLINE. **Resultados:** Las manifestaciones de la alergia al látex se relacionan con la hipersensibilidad inmediata como urticaria, angioedema, asma o incluso anafilaxia o hipersensibilidad retardada por un mecanismo como la dermatitis de contacto alérgica o irritación primaria. **Conclusión:** Prevención de la exposición, la sustitución y el uso de látex libres de productos tales como guantes sintéticos son esenciales para las personas afectadas. Ajustes en el lugar de trabajo se debe hacer con guantes sin talco, con bajo contenido de alergenos o guantes sintéticos. Estas medidas preventivas reducen significativamente la prevalencia de las reacciones alérgicas. **Descriptores:** Alergia al látex, Alimentos y alergia al látex, Prevención de reacciones al látex.

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INTRODUCTION

Latex allergy is gaining important dimension due to the large number of medical and surgical materials containing latex allergens.[1] The routine use has placed at risk of allergic reactions of both personal health care team and patients. There is cross-reactivity between latex allergens in foods (fruits and vegetables). The cost of prevention is high, but absolutely necessary due to the risk of fatal anaphylactic reactions.[2]

The present review aims to show pathogenic mechanisms, diagnostic and therapeutic strategies to control the disease, prevent the development of complications, and suggest prevention and adaptations necessary to control this form of hypersensitivity.

Latex allergy has recently emerged as an important cause of morbidity condition as rhinoconjunctivitis, urticaria, food allergy, asthma, anaphylaxis, dermatitis primary irritation or delayed hypersensitivity. This demonstration drew attention to the high number of cases associated with the increased use of latex gloves as protection. The clinical importance of latex allergy was underscored by reports of intraoperative anaphylaxis. Were identified allergenic components existing in natural rubber that can minimize exposure to allergens, develop ways of early diagnosis and specific treatments. The characterization of immunoreactivity was relatively rapid.[3,4]

Although products with latex being used for many years, the emergence of latex allergy, the IgE-mediated type, is relatively recent.[5,6,7] The first reports of latex sensitivity referred to the Type IV reactions in the skin such as contact dermatitis classic.[8] In 1979, it was described urticarial skin reaction after topical exposure to latex IgE immediate hypersensitivity considered as the probable cause of the reaction.

Concern about latex allergy has increased since 1982 with the AIDS epidemic. A significant increase in the use of disposable latex gloves for handling patients, and the increased use of condoms. Were identified IgE antibodies to latex proteins.

There are limited data on the frequency of latex-sensitive individuals in the general population. Among blood donors found to high specific-IgE antibody in 6.5% of donors, with men twice as sensitized women.[1]

Can't explain why patients with low risk can sensitize latex-specific IgE antibodies present positive latex. The answer may lie in the use of pacifiers and bottle nipples in childhood.[1,4]

Nurses, dentists, surgeons, anesthetists, laboratory technicians, hospital cleaning staff have increased risk of latex sensitization. This sensitization rate varies up to 40%[9,10], however, clinical manifestations occur in only 1-2% of these professionals.[11,12]

✓ IgE ALLERGIC REACTIONS MEDIATED BY TYPE I - IMMEDIATE HYPERSENSITIVITY: Mediated IgE antibody acts directly on the latex proteins can be triggered by direct contact with the skin, mucosa or inhalation. May present as rhinitis, asthma, rash, angioedema, conjunctivitis, and anaphylaxis.[2,3,4] Unexpected manifestations latex IgE-mediated anaphylactic are after ingestion or contact with fruit or vegetables. Half of the subjects with primary allergy to latex may develop symptoms after eating avocado, banana and kiwi. Are cross-reactions between latex proteins and foods.

✓ CONTACT DERMATITIS MEDIATED CELL - TYPE IV: It is usually limited to the area where there was contact with the latex product. Are chemicals used in the manufacture in the final product, as thiuram, carbamate and mercaptobenzothiazole. These substances are used to accelerate the crosslinking isoprene. It is mediated by T lymphocytes with delayed reaction with 24 to 48 hours to

manifest. Characteristically present with rash erythematous papules and vesicles, is repetitive, generates chronicity, may extend beyond the area of contact. This reaction can occur concomitant with IgE.[2,13]

✓ IRRITANT CONTACT DERMATITIS: This differs from dermatitis contact dermatitis is not caused by sensitization or reaction of the immune system. Among its causes are in the habit of frequent hand washing, sweat and persistent contact with talc of latex gloves. Symptoms include rash, which may be associated with itching with dry skin, erythema, accompanied by painful fissures. Not occur papules or vesicles, and not extend beyond the contact area.[2,3]

✓ ALLERGENS LATEX: Most allergens are proteins of natural rubber. This set of proteins that receives the name of Hevein is considered responsible for reactions to latex. The allergens are present in raw latex and rubber extracts already manufactured. At least 13 distinct proteins were identified and associated with sensitivity to latex in health care workers, children and adults in the general population. Protein Hev b 1, 2, 3, 4, 5, 2.6, 7.01 and 13 allergens are important, the greater potential to induce sensitization.[11,14] Four protein allergen are particularly useful as indicators of the content of rubber or as markers of latex present in the environment. Hev b 1 and Hev b 3 are associated to the particles of the rubber (polyisoprene). These allergens have greater ability to induce IgE antibody responses in individuals who have become sensitized by direct exposure of the mucosa to natural rubber products.[2,11] Hev b 5, and they are allergens Hev b 6.2 Soluble present in the latex. Most allergic reactions are caused by this second group of derivatives of natural rubber products (immersion), particularly latex gloves by allergens which are transported in the talc used in mittens or on the environment. Exposure by direct contact or inhalation occurs in occupational activities which are used rubber gloves.[2,11]

CLINICAL - GENERAL AND SPECIAL FEATURES:

The clinical symptoms of latex allergy are dependent on the individual's susceptibility to an allergen on exposure and the type and amount of allergen.[11] Exposure to latex antigens can occur via the respiratory route, parenteral, mucosal and cutaneous, parenteral and mucous membrane with increased risk of anaphylaxis.[12,13,15] Symptoms usually result from direct contact with the product, but also can result from inhalation of talc containing latex proteins.[14,16,17,18]

✓ RHINITIS AND ASTHMA: Inhalation particles of corn starch impregnated with latex allergens, dust contained in the glove may cause rhinitis and / or asthma in hypersensitive individuals.

✓ ANAPHYLAXIS: It can manifest in varied situations as bladder catheters or rubber balloons, condoms, intra-abdominal surgery, childbirth, or dental surgery. Anaphylaxis can also occur with party balloons or snowshoeing with rubber cables.[19]

✓ CONTACT DERMATITIS: As primary irritant is the most common skin reaction to latex products. Areas are resected, erythematous-cracked skin, especially on the back and palm of users' hands gloves. Non-immunological reactions are secondary to irritative effects of powder added to latex gloves or washing hands with soaps or detergents. Are caused by rubber gloves, shoes, sports equipment and medical devices, appear 6-72 hours after contact with the allergen product in previously sensitized individuals.

✓ URTICARIA CONTACT: It is common in early onset allergy to rubber. Occurs in healthcare, where 60% - 80% reported involvement of hands. Are IgE mediated and caused by natural rubber proteins, appearing 10-15 minutes after contact with gloves. Include erythema, pruritus, papules and redness at the site of contact. Are usually attributed to dust sleeve or handwashing. In healthcare, the contact urticaria can also be preceded by contact dermatitis mediated by T cells.

DIAGNOSIS: GENERAL AND SPECIFIC

The diagnosis of latex allergy should be suspected in individuals at high risk, with a history of urticaria, angioedema of the lips, eyelids, tongue after inflating balloons, itching, burning or rash after using gloves; adverse reactions to barium enema; hives or immediate symptoms ocular, nasal or lung after exposure to latex.[20]

✓ DETECTION OF ANTIBODIES SPECIFIC PROTEIN LATEX: Only 50-90% of people with positive skin tests have IgE antibodies to latex. Measurements of specific IgE antibodies to latex, when used with the purpose of confirming the diagnosis of latex allergy in suspects can fulfill its role. However, when used in patients without suspicion, may overestimate the true prevalence of latex allergy.

✓ SKIN PRICK TEST LATEX: A drop of solution containing the suspected allergen placed on the anterior and posterior forearm intradermal inoculation with the tip of a needle or puntor are considered the gold standard for diagnosis of latex allergy.[10] Risk of anaphylactic reaction.

✓ TESTS TO LATEX TEASER: The allergenicity of powder gloves may be tested in chambers provocation, being monitored by physical examination and by specific airway resistance. Provocation tests nasal and bronchial inhalation can also be used to document the raw latex allergenic proteins or rubber alone. Latex allergy can also be confirmed by the "use test", in which fingers of rubber gloves are stained and applied to the moistened fingers of persons suspected of having contact urticaria to rubber. After 30 minutes (sooner if you experience severe itching), cut up the glove finger and graduate injury. If the test is negative glove finger, an upcoming test can be performed using the entire glove. These challenge tests should only be carried out with extreme care and emergency stringent measures, the risk of any adverse reaction intense and severe.

✓ REACTION CROSS BETWEEN FOOD AND LATEX: Structural Similarities between two allergens from different sources can produce similar allergic reactions in sensitive patients, which is called cross-reactivity or cross-sensitization. The ingestion of certain foods produce allergic symptoms in latex sensitive due to the presence of these allergens. The combination of sensitivity to latex and food allergy is often referred to as latex-fruit syndrome. The foods listed in Table 1 and 2 are associated with latex allergy (1,2,3,11), are grouped by their potential to cause allergic reactions. It is likely that there are other foods, not yet identified that may have some similarities to latex allergens.

Allergen	Food	Molecular Structure	Cross reaction mediated by IgE	Clinically relevant cross-reactivity
Hev b 2	Pepper-cayenna Olive	1-ascorbate peroxidase 1,3-ß-glucanase	Yes	Unknown
Hev b 5	Kiwi Potato Beet	pKIWI501 Acidic protein Indefinite	No	Unknown
Hev b 6.02	Banana Avocado Chestnut Pepper	Chitinase class 1	Yes	Yes
Hev b 7	Potato Tomato	Patatina Unknown	Yes	Unknown
Hev b 8	Celery Banana Pineapple Pepper	Profilins	Yes	Probable
Hev b 12	Peach Cherry	Lipoprotein transfer	Yes	No
Hev b 13	Potato	Patatina	Yes	Unknown

Table 1: Proteins with sequence homologous food allergens of latex

PREVALENCE	FOOD
MAXIM	Banana, avocado, cashew nuts, Kiwi, Jaca
MODERATE	Apple, Carrot, Celery, Papaya, Potato, Tomato, Melon
MINIMUM OR INCONCLUSIVE	Pear, Mango, Pepper, Peach, Rye, Cayenna of Pepper, Plum, Wheat, Shellfish, Cherry, Hazelnut, Sunflower Seed, Pineapple, Brazil Nut, Strawberry, Soy, Coconut, Fig, Pea, Grape, Buckwheat, Castor Apricot, Passion Fruit, Oregano, zucchini, Nectarine, Persimmon

Table 2: Prevalence of cross-reactivity to latex (kindly provided by Dr. Ney B. Corrêa Hospital Servants of the State / RJ).

RECOMMENDATIONS FOR PREVENTION

- ✓ **Reduce exposure:** Limit the use of latex products. Check the available alternatives;
- ✓ **Dialogue with the employer:** Discuss the reduction of latex products in contact with the skin or inhaled;
- ✓ **Inform health professionals:** Ensure that information about latex allergy is presented to physicians, dentists, nurses, staff and technical area cleaning;
- ✓ **Choose gloves latex free alternatives:** Vinyl gloves that may not be effective in protecting against HIV infection and hepatitis. Other types of synthetic gloves (polyurethane, nitrile) which can be effective to protect the transmission of infectious diseases, but has a high cost;
- ✓ **Avoid inhalation of latex particles:** Staying away from the work areas where other professionals are using latex gloves. Request non-use glove with powder of cornstarch (to avoid spraying the environment);
- ✓ **Medical Alert: A**lways wear identification (eg bracelet) that clearly warn others about the risk of allergic reactions to latex products;
- ✓ **Keep an eye out for products labeled "hypoallergenic":** This term on the label does not mean that these products do not contain latex. "Hypoallergenic" in this case indicates that few chemicals used in the production process of latex;
- ✓ **Consult the expert:** Talk to your doctor about your allergy to latex. This may be able to suggest alternatives to avoid latex in everyday life and reduce the chance of allergic reaction. Might suggest emergency medication in case of severe allergic reaction;
- ✓ **Use latex condoms:** Consider the use of condoms with polyurethane (Avanti) or lambskin or use another contraceptive method;

CONCLUSION

Over the past 25 years, there was an increase in the incidence of latex allergy, possibly due to greater use of medical and surgical materials and deficiency of proper standardization. Quality control, re-education of health professionals and patients, would be an important step to reduce allergic reactions to latex. The recognition of populations at risk, early diagnosis considering clinical history, allergy tests and specific IgE, would enable better matching of clinical management and adaptation of environments for the exercise of free labor in the risk of allergic reaction. Products containing latex must be replaced by alternatives such as those derived from guayule, for example.

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